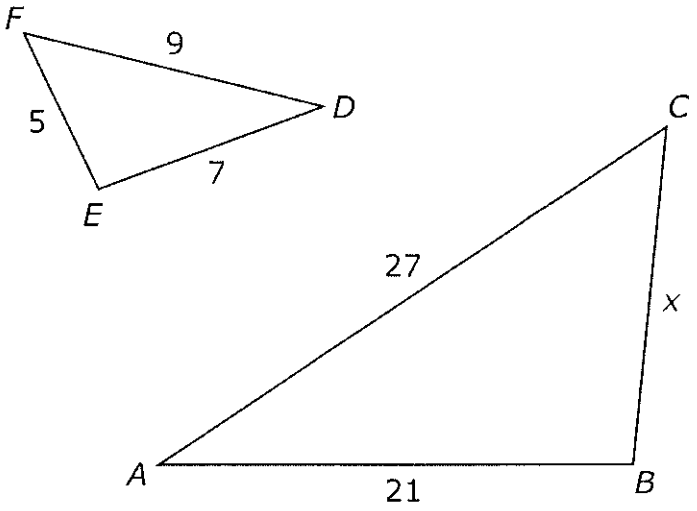
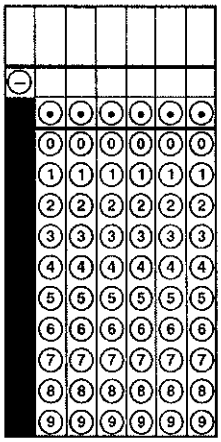
1. The figure shows $\triangle ABC \sim \triangle DEF$ with side lengths as indicated.

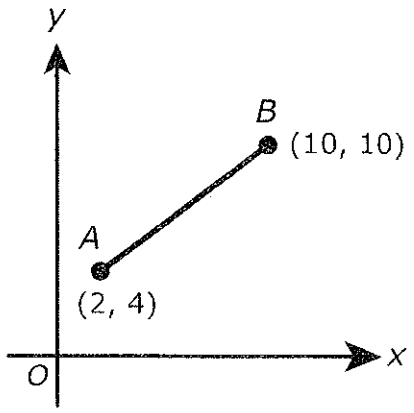


What is the value of x?

Enter your answer in the box.



2. In the coordinate plane shown, point C (not shown) lies on $\overline{AB}$.



If the ratio of the length of $\overline{AC}$ to the length of $\overline{CB}$ is 3:1, what is the y-coordinate of point C ?

5. Line segment JK in the xy-coordinate plane has endpoints with coordinates $(-4, 11)$ and $(8, -1)$. What are **two** possible locations for point M so that M divides $\overline{JK}$ into two parts with lengths in a ratio of 1:3 ?

Indicate **both** locations.

Ⓐ $(-2, 9)$

Ⓑ $(-1, 8)$

Ⓒ $(0, 7)$

Ⓓ $(1, 6)$

Ⓔ $(3, 4)$

Ⓕ $(4, 3)$

Ⓖ $(5, 2)$

Ⓗ $(6, 1)$